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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,638	07/02/2004	Andrew Westcott	540-506	3003

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EXAMINER
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KAPLAN, HAL IRA

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 03/22/2006

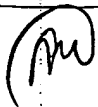
Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/500,638

Applicant(s)

WESTCOTT, ANDREW 

Examiner

Hal I. Kaplan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/2/04, 2/21/06</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The disclosure is objected to because of the following informalities: Page 23, line 3 contains the phrase "offset to be added". It appears this should read "offset to be added or subtracted" (see page 23, lines 24-25). Page 9, lines 23-29 and page 10, lines 1 and 7 contain the phrases "code means" and "processing means". As the purpose of the specification is to enable one of ordinary skill in the art to make and/or use the invention, and one of ordinary skill in the art would not understand the form and legal phraseology often used in patent claims, such as "means" and "said", they should be removed.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

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- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

3. The disclosure is objected to under 37 CFR 1.71(a) because it is not sufficiently enabling.

Page 2, lines 5-8 state that the current controller is operated such that the transistors are switched concurrently, i.e. they are either both on or both off, and are switched together, not separately. This is inconsistent with page 12, lines 5-15, which state that there is a mode (second mode) in which one of the transistors is switched 'on' and the other is switched 'off', and the transistors can be switched separately.

Page 24, lines 23-24 provide formulae for calculating the number of cycle counts ( $N_A, N_B$ ). These formulae include the function "round". The function "round" is not defined in the specification. It appears that the products of the clock frequency and

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pulse widths are rounded up or down, but it is not clear which, and if this is the case, it is not clear to how many decimal places the products are rounded.

Page 25, line 16 states that if the number of cycle counts ( $N_A$ ) is odd, then  $d_A = -d_A$ . The only way this can be true is if  $d_A = 0$  (in which case  $ON_A = \frac{1}{2}(N_{full} - N_A + d_A) = \frac{1}{2}(N_{full} - N_A)$ ); however lines 18-19 state that  $d_A$  is not always equal to zero. It is possible that this was meant to read  $d_A = |-d_A|$ , which is always true, regardless of whether  $N_A$  is even or odd. In either case, the if-then-else formula provided in lines 15-17 is incorrect. In addition,  $d_A$  is not defined in the specification. The Examiner has assumed that  $d_A$  is the distortion referred to in lines 6-14.

### ***Drawings***

4. The drawings were received on July 2, 2004. These drawings are accepted.

### ***Double Patenting***

5. Applicant is advised that should claim 19 be found allowable, claim 20 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

The only distinction between claims 19 and 20 is that the program code means of claim 20 are recited as being stored on a computer readable medium. Program code for a computer program is inherently stored on a computer readable medium, so claims 19 and 20 are duplicate claims.

***Claim Objections***

6. The claims in this application are not drafted in conventional US format. It is suggested that they be redrafted to conform to customary US practice.

7. Claims 2-6, 8, 16, and 24 are objected to because of the following informalities: Claims 2-6 and 16, line 1 each contain the word "comprising". It appears this should be "further comprising". Claim 4, line 1 contains the phrase "claims 2". It appears this should read "claim 2". Claim 8, line 11 contains the phrase "+VS, 0V and VS". It appears this should read "+VS, 0V and -VS". Claim 24, line 1 contains the phrase "further comprising voltage". It appears this should read "further comprising a voltage". Appropriate correction is required.

8. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 2 replaces one rule with another, whereas a proper dependent claim must limit the subject matter of a previous claim and cannot simply replace subject matter. If claim 2 was properly written in independent form, it would constitute a separate species and would be subject to an election of species requirement. Claims 3, 4, and 8-26 inherit this deficiency.

9. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 recites the

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limitation "... where pulses cannot be entered symmetrically, ..." However, claim 6 depends from claim 5, which recites the limitation "... any pulse should be positioned symmetrically about the centre of the period". If any pulse must be positioned symmetrically, then it cannot be true that there are cases where pulses cannot be entered symmetrically. If claim 6 was properly written in independent form, it would constitute a separate species and would be subject to an election of species requirement. Claims 8-26 inherit this deficiency.

10. Claims 8, 23, and 24 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 8 recites the limitation "generating pulsed first and second switching signals in accordance with any preceding claim". Claim 23 recites the limitation "... processing means programmed to perform the method steps of claim 8". Claim 24 recites the limitation "... the processing means is programmed to perform the method steps of claim 9". These limitations do not further limit the claims from which they depend.

11. Claim 24 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Claims 25 and 26 inherit this deficiency. Accordingly, the claims have not been further treated on the merits.

12. Claim 24 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim

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(claim 24 depends from claim 9, which depends from multiple dependent claim 8). See MPEP § 608.01(n). Claims 25 and 26 inherit this deficiency. Accordingly, the claims have not been further treated on the merits.

***Claim Rejections - 35 USC § 101***

13. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 23 and 24 are rejected under 35 U.S.C. 101 because the claimed inventions are directed to non-statutory subject matter. Claims 23 and 24 each claim both a device and a method. These claims embrace or overlap two different statutory classes of invention set forth in 35 U.S.C. 101, which is drafted so as to set forth the statutory classes of invention in the alternative only. See MPEP §2173.05(p)(II).

***Claim Rejections - 35 USC § 112***

14. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15. Claims 19 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 19 and 20 recite the limitation "the program is run on ... other processing means associated with the switching circuit". The specification does not identify what



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the "other processing means", besides a computer, are, and one of ordinary skill in the art could not make and/or use the invention without knowing what the "other processing means" are.

16. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

17. Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

18. The term "substantially" in claim 1 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear how close to the desired voltage the average voltage can be and still be considered substantially equal to the desired voltage. Claims 2-26 inherit this deficiency.

19. The term "substantially" in claim 8 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claims 9-14 and 23-26 inherit this deficiency.

20. The term "substantially" in claims 15 and 16 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary

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skill in the art would not be reasonably apprised of the scope of the invention. It is not clear how close to the maximum or minimum current flow the can be and still be considered substantially maximum or minimum, or how close to the desired voltage the average voltage can be and still be considered substantially equal to the desired voltage. Claims 17 and 18 inherit this deficiency.

21. Claims 23 and 24 each claim both a device and a method. This renders the claims indefinite because they are ambiguous. See MPEP §2173.05(p)(II).

***Allowable Subject Matter***

22. Claims 1-18, 21, and 22 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

23. The following is a statement of reasons for the indication of allowable subject matter:

Claims 1-18, 21, and 22 contain allowable subject matter because none of the prior art of record teaches or discloses both a voltage demand signal indicative of a desired voltage, rather than a desired current, to be supplied at the output in a period, and a rule that the pulse width of the output voltage, rather than the output current, must not fall below a minimum pulse width, in combination with the remaining claimed features.

***Conclusion***

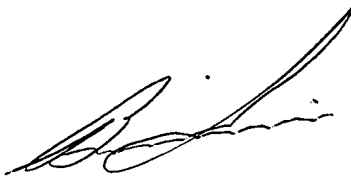
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal I. Kaplan whose telephone number is 571-272-8587. The examiner can normally be reached on M-F 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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